

### AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions and listings of claims in this application.

#### Listing of Claims:

1. (Currently amended) ~~Implant comprising or consisting of~~ An implant comprising:  
titanium and having one or more surfaces which can be applied in or on tissue areas and/or bone growth areas, one or more of the said surfaces being arranged with a depot for bone-growth-initiating or bone-growth-stimulating substance, ~~which~~  
wherein the depot is formed by a pore arrangement in a relatively thick oxide layer on the titanium, wherein the oxide layer has a thickness in the range of 1 - 20  $\mu\text{m}$ , and characterized in that  
wherein the substance, for a period of time, is acted on by, or works with, one or more release functions which permit ~~a preferably an~~ essentially controlled release of substance to the respective surrounding tissue or tissue/bone growth areas.
2. (Currently amended) ~~Implant according to Patent Claim 1, characterized in that~~ The implant according to claim 1, wherein two or more release arrangements are obtained by ~~means of~~ different pore arrangements within one or more areas of one or more of the said surfaces.
3. (Currently amended) ~~Implant according to Patent Claim 1, characterized in that~~ The implant according to claim 1, wherein pores with different pore characteristics, ~~for example open or more or less closed pores, pore depth, pore density, pore volume, etc.,~~ are arranged within one or more areas.
4. (Currently amended) ~~Implant according to Patent Claim 1, characterized in that~~ The implant according to claim 1, wherein the release function(s) operate(s) with combinations of larger and smaller pores arranged to effect a desired release sequence over time.

5. (Currently amended) ~~Implant according to Patent Claim 4, characterized in that~~ The implant according to claim 1, wherein larger pores effect a more rapid release, and smaller and/or deep pores effect a delayed release.
6. (Currently amended) ~~Implant according to Patent Claim 1, characterized in that~~ The implant according to claim 1, wherein different areas are provided with different pore characteristics.
7. (Currently amended) ~~Implant according to Patent Claim 1, characterized in that~~ The implant according to claim 1, wherein the surface of the oxide layer comprises about 20% titanium, about 55% oxygen and about 20% carbon, and the layer otherwise consists of titanium dioxide.
8. (Currently amended) ~~Implant according to Patent Claim 1, characterized in that~~ The implant according to claim 1, wherein the oxide layer has a surface roughness of about 1 - 5  $\mu\text{m}$  or less.
9. (Currently amended) ~~Implant according to Patent Claim 1, characterized in that~~ The implant according to claim 1, wherein the oxide layer has a thickness in the range of 1–20  $\mu\text{m}$ , preferably 2 - 20  $\mu\text{m}$ .
10. (Currently amended) ~~Implant according to Patent Claim 1, characterized in that~~ The implant according to claim 1, wherein the oxide layer is highly porous, with pore diameters in the range of 0.01 - 10  $\mu\text{m}$ .
11. (Withdrawn and Currently amended) ~~Implant A implant for application in a hole formed in tissue and/or bone, for example the jaw bone, characterized in that wherein it the implant~~

comprises:

a titanium portion which can cooperate with the hole formation, ~~in that~~  
wherein the titanium portion is designed with one or more very thick titanium oxide layers having surfaces which can be placed against the tissue and/or bone in the hole formation, ~~in that~~

wherein each oxide layer is provided with a pore arrangement which functions as a depot for bone-growth-initiating and/or bone-growth-stimulating substance, ~~for example a substance belonging to the superfamily-TGF- $\beta$ , and in that~~

wherein, when the depot is filled with substance and the implant is in position in the hole, a release function for releasing the substance to the bone comes into operation.

12. (Withdrawn and Currently amended) ~~Implant according to Patent Claim 11,~~  
~~characterized in that~~ The implant according to claim 11, wherein the release function is controlled, for a chosen period of time.

13. (Withdrawn and Currently amended) ~~Implant according to Patent Claim 12,~~  
~~characterized in that~~ The implant according to claim 12, wherein the release function is controlled by the choice of pore arrangement and pore characteristics in or on the said layer.

14. (Withdrawn and Currently amended) ~~Implant according to Patent Claim 11,~~  
~~characterized in that~~ The implant according to claim 11, wherein the oxide layer is highly porous.

15. (Withdrawn and Currently amended) ~~Implant according to Patent Claim 11,~~  
~~characterized in that~~ The implant according to claim 11, wherein it is a screw implant which bears the said oxide layers and surfaces on its threads.

16. (Withdrawn and Currently amended) ~~Method~~ A method for producing an implant ~~intended to be applied in or at a hole formed in tissue and/or bone, preferably the jaw bone,~~

~~characterized in that~~ wherein the implant is produced, ~~for example by means of machining,~~ with a portion of titanium which has surfaces which can be placed against the bone and/or tissue when the implant is in position in the hole, ~~in that~~

wherein the said titanium on the said surface or surfaces is subjected to anodic oxidation to an extent which gives a highly porous and relatively thick oxide layer on each surface concerned, ~~in that~~

wherein a bone-growth-initiating substance or bone-growth-stimulating substance, ~~for example a substance belonging to the superfamily TGF- $\beta$ ,~~ is applied to the said porous and thick layers, ~~for example by saturation or immersion,~~ and ~~in that~~

wherein the implant is placed in its position in the hole, resulting in the process of release of the substance to the bone being started by the release of components in the tissue and/or bone.

17. (Withdrawn and Currently amended) ~~Method according to Patent Claim 16,~~  
~~characterized in that~~ The method according to claim 16, ~~wherein~~ the implant, at the part or parts bearing the said surfaces, is provided with one or more threads, and ~~in that~~ the implant is screwed into the bone

18. (Withdrawn and Currently amended) ~~Method according to Patent Claim 16,~~  
~~characterized in that~~ The method according to claim 16, ~~wherein~~ the oxide layer is immersed in a container holding the substance.

19-21. (Canceled).

22. (Currently amended) ~~Implant~~ An implant comprising: ~~or consisting of~~  
titanium and having one or more surfaces which can be applied in or on tissue areas and/or bone growth areas, one or more of the said surfaces being arranged with a depot for a bone-growth-initiating or bone-growth-stimulating substance, ~~for example a substance belonging to the superfamily TGF- $\beta$ , which~~

~~wherein the depot is formed by a pore arrangement in a relatively thick oxide layer on the titanium, characterized in that and~~

~~wherein the oxide layer has a thickness in the range of 1-20  $\mu\text{m}$ , for example 2-20  $\mu\text{m}$ .~~

23. (Currently amended) ~~Implant according to Patent Claim 22, characterized in that The implant according to claim 22, wherein~~ the oxide layer has a surface roughness in a range of 0.4 - 5  $\mu\text{m}$ .

24. (Currently amended) ~~Implant according to Patent Claim 22, characterized in that The implant according to claim 22, wherein~~ the oxide layer is highly porous, with  $1 \times 10^7$  -  $1 \times 10^{10}$  pores/ $\text{cm}^2$ .

25. (Currently amended) ~~Implant according to Patent Claim 22, characterized in that The implant according to claim 22, wherein~~ each surface essentially has pores with diameter sizes in the range of 0.1 - 10  $\mu\text{m}$ , and/or in that the total pore volume is within a range of  $5 \times 10^{-2}$  and  $10^{-5}$   $\text{cm}^3$ .

26. (Withdrawn and Currently amended) ~~Method A method~~ for producing, on an implant comprising ~~or consisting of~~ titanium, and by means of anodic oxidation, relatively thick oxide layers on one or more titanium surfaces which are intended to be placed against or arranged adjacent to one or more tissue and/or bone growth areas, in which

~~wherein the method at least the part or parts bearing the said surface or surfaces are prepared and immersed in electrolyte and the implant is brought into contact with an electrical energy source above the electrolyte surface, and the oxidation process is established by also connecting to the energy source a counter-electrode which is arranged in the electrolyte, characterized in that~~

~~wherein~~ diluted inorganic acids, diluted organic acids and/or small quantities of hydrofluoric acid or hydrogen peroxide are added to the electrolytic composition, and in that

~~wherein the energy source is chosen to operate at a voltage value or voltage values in the~~

range of 150 - 400 volts.

27. (Withdrawn and Currently amended) ~~Method according to Patent Claim 26,~~  
~~characterized in that~~ The method according to claim 26, wherein the voltage is varied for the  
same implant at different times in order to create different pore sizes within the same surface  
areas.

28. (Withdrawn and Currently amended) ~~Method according to Patent Claim 26,~~  
~~characterized in that~~ The method according to claim 26, wherein the position of the implant in  
the electrolyte is changed, together with the composition of the electrolyte and/or the voltage, in  
order to create different oxide thicknesses and/or areas with different porosity or pore  
characteristics.

29. (New) The implant according to claim 22, wherein the oxide layer has a thickness in the  
range of 2 - 20  $\mu\text{m}$ .